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PATENT
2565-0198P

IN THE U.S. PATENT AND TRADEMARK OFFICE

Applicant: Tadashi YAMAURA Conf.: 3186

Appl. No.: 09/530,719 (Assigned Group: 2654, A. Azad)

ATTN: GROUP DIRECTOR or SPE, GROUP 2600

Filed: May 4, 2000

For: A METHOD FOR SPEECH CODING, METHOD FOR SPEECH DECODING AND THEIR APPARATUSES

PETITION FOR ACCELERATED EXAMINATION UNDER MPEP § 708.02 (VIII)

Assistant Commissioner for Patents
Washington, D.C. 20231

June 6, 2002

Sir:

Applicant respectfully requests accelerated examination of the above-identified application in accordance with the requirements of MPEP § 708.02 (VIII), which are addressed in the following remarks.

(a) Applicant has enclosed the appropriate fee set forth in 37 CFR 1.17(h) herewith this petition.

(b) Applicant believes all claims presented are directed to a single invention and respectfully requests examination of all claims pending in the present application.

(c) A pre-examination search has been performed by the Japanese Patent Office.

(d) One copy each of the references identified in the search performed by the Japanese Patent Office or their English language equivalents deemed most closely related to the subject matter encompassed by the claims have previously been made of record.

(e) A detailed discussion of the references of record, which discussion points out, with the particularity required by 37 CFR 1.111 (b) and (c), how the claimed subject matter is patentable over the references is attached hereto.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Mark E. Olds, Reg. No. 46,570, at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fee required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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MKM/MEO/kmr
2565-0198

Enclosures: Verified Translation of Priority Document HEI 9-354754 - to follow
Translation of Document (1) JP 8-328598*
Translation of Document (4) JP 9-22299*
Translation of Document (5) JP8-110800*

*Document numbers referred to are as listed in the attached "Detailed Discussion of the References - MPEP §708.02 (VIII)(e)"

(Rev. 12/03/01)

Detailed Discussion of the References - MPEP § 708.02 (VIII) (e)

Applicant provides below a description of the relevant aspects of the cited references that points out, with the particularity required by 37 CFR 1.111 (b) and (c), how the claimed subject matter is patentable over the references. Translations of these documents or English language equivalents have been provided to allow the Examiner to confirm the Applicant's analysis and patentability of the claimed subject matter. Further, for the Examiner's reference a table of the discussed references is provided below.

NO	DOCUMENT NUMBER		DATE	COUNTRY	TRANSLATION	
					YES	NO
1	A8	3 2 8 5 9 8	1996-12-13	JP	X	
2	A8	3 2 8 5 9 6	1996-12-13	JP	US Eq.	
3	A2	3 1 2 3 6 0	1997-10-22	GB	X	
4	A	9 2 2 2 9 9	1997-01-21	JP	X	
5	A8	1 1 0 8 0 0	1996-04-30	JP	X	
6	B1	4 0 5 5 4 8	1994-11-17	EP	X	
7	A1	0 9 7 2 9 4	1998-04-14	JP	Partial	
8	08	1 8 5 1 9 8	1996-07-16	JAPAN (ABSTRACT)		
9	6	0 5 2 6 6 1	2000-04-18	US	X	
10	6	0 2 9 1 2 5	2000-02-22	US	X	
11	Wang et al., IEEE, Vol. 1, pp. 49-52 (1989)					
12	Schroeder et al., IEEE, Vol. 3, pp. 937-940 (1985)					

1. Japanese Unexamined Published Patent Application 8-328598

In the above-identified patent application a CELP encoding/decoding apparatus is disclosed. The encoding and decoding sections are shown in Fig. 1 and are readily understood by those skilled in the art. Therefore, explanation of these aspects will not be detailed. Relevant to the claimed inventions of the present application, document 1 further discloses that to improve the performance of conventional systems, a sound-source pattern group is selected among a plurality of sound source pattern groups based on data included in a provided voice code in a voice decoding apparatus (see, e.g., paragraph 0014, pages 14-15 of the translation).

However, in contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or decoding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

2. Japanese Unexamined Published Patent Application 8-328596 (U.S. Patent No. 5,864,797)

In the above-identified patent application, a pitch synchronous innovation code excited linear prediction (PSI-CELP) coding system is disclosed. In relevant passages of the application, a system using a code vector for minimizing a distortion between a reproduced voice and an input voice is described. The code vector is retrieved from a noise codebook in which code vectors in a plurality of types corresponding to a noise are stored and a pulse codebook in which code vectors in a plurality of types corresponding to

pitch waveforms of voiced sound are stored in a voice coding apparatus (see, e.g., column 8, lines 10-55 of U.S. Patent No. 5,864,797 and Fig. 1, refs. 6 and 7).

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or coding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

3. GB 2312360 (Japanese Unexamined Published Patent Application 9-281997)

The above-identified patent application discloses a voice signal coding apparatus using linear predictive coding. Relevant to the present invention, the apparatus includes a voice status detector that detects whether an input signal divided at predetermined frame intervals is a voice or a non-voice signal. Further, coding selecting means is provided for selecting either coding of the voice signal or coding of the non-voice signal in the voice signal coding apparatus (see, e.g., pages 12-14 of GB 2312360).

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or coding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

4. Japanese Unexamined Published Patent application 9-022299

In the above-identified patent application, a sender detects voice/non-voice

information from a sound source signal produced by eliminating a spectrum parameter from a voice signal and encodes the voice/non-voice information. A voice sound source codebook and a non-voice sound source codebook is switched based on the voice/non-voice information in a voice coding communication system (see, e.g., paragraph 0004, pages 6-9 of the translation).

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or coding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

5. Japanese Unexamined Published Patent Application 8-110800

In the above-identified patent application, an encoding system using A-b-S methods for encoding is disclosed. In relevant aspects, a predetermined number of noise codebooks, each storing more than one noise vector, are disclosed. A noise code vector corresponding to a frequency characteristic of an input voice is switched based on a frequency characteristic by analyzing the frequency characteristic of the input voice in a voice coding system (see, e.g., paragraphs 0011 and 0012, page 9 of the translation).

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or coding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

6. EP 405548 (Japanese Unexamined Published Patent Application 3-033900; U.S. Patent No. 5,261,027)

The above-identified patent application discloses a CELP type speech signal coding system. The reproduced signal is generated from a code vector obtained by applying linear prediction to a vector of a residual signal of white noise of a code book and a pitch prediction vector. The pitch prediction vector is obtained by applying linear prediction to a residual signal of a preceding frame given a delay corresponding to a pitch frequency. In addition to the code vector and pitch prediction vector, a residual signal vector of an impulse having a predetermined relationship with the vectors of the white noise codebook is used. A resultant vector is obtained by adding a vector of a residual signal of a white noise to a vector of a residual signal of an impulse in a voice coding system.

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or coding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

7. <u>Japanese Unexamined Published Patent Application 10-097294</u>

Applicant submits that any rejection relying on the above-identified patent application is improper because the present application is entitled to the right of priority of Japanese Patent Application No. 9-354754 under 35 U.S.C. § 119. The present application is therefore entitled to the benefit of the filing date of this patent application, December 24,

1997, which predates the publication date of the above-identified patent application, April 14, 1998.

Applicant has enclosed a verified English translation of the Japanese Patent Application No. 9-354754, to which the present application claims a right of priority. Accordingly, Applicant respectfully submits the above-identified patent application is not prior art with respect to the present application.

8. Japanese Unexamined Published Patent Application 8-185198

In the above patent application, a plurality of noise codebooks is provided and a noise codebook is selected among the plurality of noise codebooks based on a pitch cycle in a voice decoding method. Further description of this application is provided in the present Application on page 5, line 1 to page 6, line 3.

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or decoding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

9. U.S. Patent No. 6,052,661 (Japanese Unexamined Published Patent Application 8-135240)

The above-identified patent application discloses a speech encoding/decoding apparatus for dividing an input speech into spectrum envelope information and excitation signal information and for encoding the excitation signal information by the frame. In the

above patent application, a target voice vector of a vector length corresponding to a delay parameter is produced from an input voice and a distortion in coding is evaluated by comparing with the target voice vector in a voice coding apparatus (see, e.g., column 10, line 47 to column 11, line 39).

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or decoding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

10. U.S. Patent No. 6,029,125

In Hagen et al., as described on lines 39-53 in column 5 of the specifications, anti-sparseness modification level is determined according to an evaluation result of a sparseness level of a voice signal generated by coding (coded speech signal) based on density level, etc. in an arrangement of a sample of the voice signal generated by coding, for example. The anti-sparseness modification level is determined regardless of an original state of an original voice signal which is a coding object in a concerning voice period. Therefore, in some cases, even if the sparseness is large for the original voice signal, the sparseness of the voice signal generated by coding becomes small after the anti-sparseness modification. Consequently, a quality of coding drops.

However, in the present invention, the noise level of the original voice signal which is the coding object in the concerning voice period is estimated and evaluated based on the code and coding result, and the noise level is changed according to the evaluation result.

Therefore, the noise level of the voice signal generated by coding, of which noise level is changed, is similar to a state of the noise level of the original voice signal. Hence, the quality of coding can be improved.

11. Wang et al., IEEE, Vol. 1, pp. 49-52 (1989)

In the above-referenced document, a coded voice is produced by switching a plurality of excitation codebooks based on a condition of an input voice in a voice coding and decoding method. An excitation codebook used in a coding side is also used in a decoding side. Therefore, it is necessary to encode and transmit information on which excitation codebook is used. However, in the present invention, since a noise level of a voice is evaluated based on a code or decoding result and a noise level of a signal output from a sound source codebook is changed based on a result of evaluation, it is not necessary to encode and transmit information for instructing the noise level directly. Further description of this document is provided in the present Application on page 3, line 21 to page 4, line 25.

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or decoding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

12. Schroeder et al., IEEE, Vol. 3, pp. 937-940 (1985)

In the above document, a synthetic voice is produced by using a signal output from a

single excitation codebook without changing. However, in the present invention, a noise level of a signal output from a sound source codebook is changed. Further description of this document is provided in the present Application on page 1, line 14 to page 3, line 21.

In contrast to the above-described document, Applicant's claimed combinations include methods and devices (e.g., noise level evaluator) for evaluating a noise level of a voice based on a code or decoding result. Each of Applicant's independent claims contains this feature. Therefore, at least this feature of Applicant's claimed combinations is not taught or suggested in the above-described document.

The above describe documents supply various methods and devices for improving the quality of coded voice transmission systems. However, none of these documents teach or suggest all the features of Applicant's claimed inventions. Accordingly, none of these references anticipate Applicant's claimed combinations under 35 U.S.C. § 102.

As stated in MPEP § 2131, "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ...claim." *Richardson v. Suzuki Motor Co.,* 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). None of the documents described above either expressly or inherently describe every feature of Applicant's claimed combinations as discussed above. Therefore, Applicants respectfully submit that these documents do not anticipate Applicant's claimed combinations.

Further, as stated in MPEP § 2143, to establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck,* 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). None of the references individually teaches at least methods or devices for evaluating a noise level of a voice based on a code or coding/decoding result, as discussed above. Therefore, since "all the claim limitations" are not taught in the above references, Applicant respectfully submits that any combination of the above-described documents (assuming these documents were properly combinable, which Applicant does not concede) would not yield Applicant's claimed combinations as required under 35 U.S.C. § 103. Further, Applicant submits that one of ordinary skill in the art would not have been motivated to modify the documents described above to arrive at Applicant's claimed combinations absent impermissible hindsight reference to Applicant's specification.

The dependent claims are allowable at least by virtue of their dependency on the above-identified independent claims. See MPEP § 2143.01. Moreover, these claims recite additional subject matter, which is not suggested by the documents taken either alone or in combination.

Accordingly, Applicant respectfully submits that all of the claims pending in the present application are allowable and respectfully request early examination and allowance of these claims.